

Date: Wednesday, 3/21/2007 3:48:35 PM  
 User: Kim Johnston

## Process Sheet

|  |                                       |
|--|---------------------------------------|
| Customer : CU-DAR001 Dart Helicopters Services | Drawing Name : WEARPAD                |
| Job Number : 31419                             |                                       |
| Estimate Number : 12782                        |                                       |
| P.O. Number : <i>N/A</i>                       | Part Number : D35643                  |
| This Issue : 3/21/2007 S.O. No. : <i>N/A</i>   | Drawing Number : D3564 REV A          |
| Prsht Rev. : NC                                | Project Number : N/A                  |
| First Issue : <i>N/A</i> Type : SMALL /MED FAB | Drawing Revision : A                  |
| Previous Run : 31134                           | Material : <i>N/A</i>                 |
| Written By : _____                             | Due Date : 3/30/2007 Qty: 10 Um: Each |
| Checked & Approved By : <i>07.03.22</i>        |                                       |
| Comment : Est Rev:A New Issue 07-03-08 ec      |                                       |

Additional Product :

Job Number:



|         |                       |               |
|---------|-----------------------|---------------|
| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|

|     |           |                    |
|-----|-----------|--------------------|
| 1.0 | M304S16GA | 304/316 .063 Sheet |
|-----|-----------|--------------------|



Comment: Qty.: 0.9177 sf(s)/Unit Total : 9.1770 sf(s)

M304S16GA Stainless steel sheet 0.063" thick

Batch: ~~M1900~~ M19052 (9) M101873 (1)

SAN 07/07/25

(1)

|     |           |                |
|-----|-----------|----------------|
| 2.0 | WATER JET | FLOW WATER JET |
|-----|-----------|----------------|



Comment: FLOW WATER JET

1-Cut as per Dwg D3564 \*\*\*\*\* (D3564-1F) \*\*\*\*\*

Dwg Rev: *A*Prog Rev: *A*

SAN

07/03/25

10

2-Deburr if necessary

|     |     |  |
|-----|-----|--|
| 3.0 | QC2 | INSPECT PARTS AS THEY COME OFF MACHINE |
|-----|-----|--|



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SAN

07/03/25

10

|     |     |              |
|-----|-----|--------------|
| 4.0 | QC8 | SECOND CHECK |
|-----|-----|--------------|



Comment: SECOND CHECK

SAN 07/03/25 (10)

|     |          |          |
|-----|----------|----------|
| 5.0 | BRAKE NC | NC BRAKE |
|-----|----------|----------|



Comment: NC BRAKE

Deburr if necessary

Form on Brake as per Dwg D3564 using Jigs DT and DT

MF

07-03-30

(10)

Form Joggle as per Dwg D3564 on brake using Jig DT8157

STB

07/04/02

10

**Dart Aerospace Ltd**

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR: |      | WORK ORDER NON-CONFORMANCE (NCR) |                             |                                 |                |                           |                       |                          |
|------|------|----------------------------------|-----------------------------|---------------------------------|----------------|---------------------------|-----------------------|--------------------------|
| DATE | STEP | Description of NC<br>Section A   | Corrective Action Section B |                                 |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector |
|      |      |                                  | Initial<br>Chief Eng        | Action Description<br>Chief Eng | Sign &<br>Date |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |
|      |      |                                  |                             |                                 |                |                           |                       |                          |

**NOTE:** Date & initial all entries

Date: Wednesday, 3/21/2007 3:48:35 PM

User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: WEARPAD

Job Number: 31419

Part Number: D35643

Job Number:



Seq. #:

Machine Or Operation:

Description:

6.0

QC5

INSPECT WORK TO CURRENT STEP



070402



Comment: INSPECT WORK TO CURRENT STEP

Ensure joggle as per dwg D3420 D3564

7.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

Qty Description Batch

A/R 2059B Hardcoat

M102755

Weld hardcoat as per Dwg D3427

D3564

FL 07/04/14

OK TO CONTINUE BY 02.04.15

TURN OVER

STOP (SEE P. HUM BEFORE CONTINUING) 07.04.15

8.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

07/04/23 (10)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07/04/23 (10)

10.0

POWDER COATING

POWDER COATING



M101601



Comment: POWDER COATING

Powder Coat Grey Sandtex (Ref: 4.3.5.6) as per QSI 005 4.3

07-04-26 (10)

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M.L. 07/04/30

(10X)

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: FP18

M.L.

04-04-30

(10)

13.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07/05/01

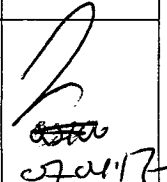
Job Completion



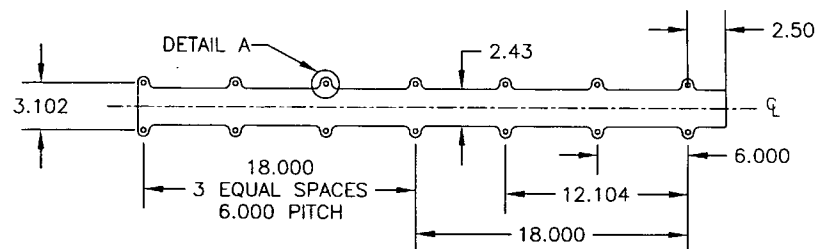
u. 07/05/01

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

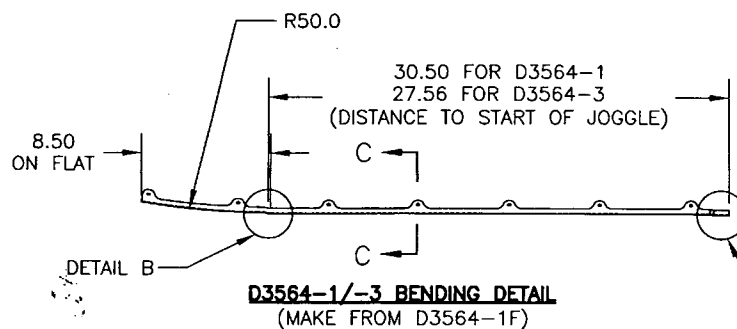
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/05/18  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR:     |      | WORK ORDER NON-CONFORMANCE (NCR) |                                  |   |                |                           |                       |  |
|----------|------|----------------------------------|----------------------------------|---|----------------|---------------------------|-----------------------|--|
| DATE     | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B   |   |                | Verification<br>Section C | Approval<br>Chief Eng | Approval<br>QC Inspector   |
|          |      |                                  | Initial<br>Chief Eng             | Action Description<br>Chief Eng         | Sign &<br>Date |                           |                       |  |
| 07.04.18 | 7    | TAB WILL NOT FIT SKID TUBE       | 21<br>per 07.04.18<br>QSS<br>042 | OPEN TABS BY 0.060"<br><br>SEE ATTACHED | FF<br>07/04/18 | 07/04/18                  |                       | <br>07.04.18 |
|          |      |                                  |                                  |   |                |                           |                       |  |
|          |      |                                  |                                  |   |                |                           |                       |  |

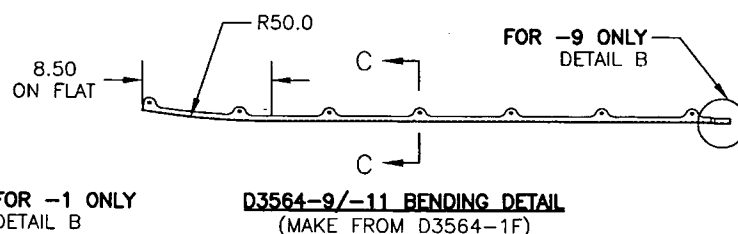
NOTE: Date & initial all entries



**D3564-1F FLAT PATTERN**



**D3564-1/-3 BENDING DETAIL**  
(MAKE FROM D3564-1F)



**D3564-9/-11 BENDING DETAIL**  
(MAKE FROM D3564-1F)

2059B HARDCOAT WELD  
4.0 LONG  
0.063 TO 0.125 HIGH  
(TYP. 11 PLS.)  
WELD AFTER BENDING AS  
ILLUSTRATED PER DT8308



**D3564-1/-3/-9/-11 WELDING DETAIL**

NO. 31419  
WORK ORDER  
WITHOUT NOTICE  
UNCONTROLLED COPY  
ENGINEERING  
RETURN TO  
SHOP COPY

RELEASED

07.07.28

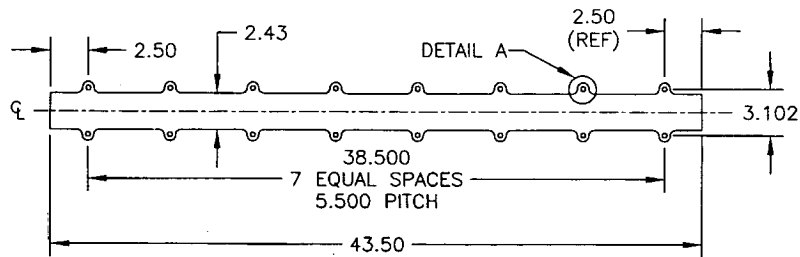
**D3564-1/-3/-5/-7/-9/-11/-13 WEARPLATE NOTES**

- 1) MATERIAL: AISI 304/316 SS SHEET, 16 GAUGE (0.063 THICK)  
(REF DART MATERIAL SPEC M304S16GA)
- 2) FINISH: POWDER COAT GREY SANDTEX (REF 4.3.5.6) PER DART QSI 005 4.3
- 3) WELD PER DART QSI 004
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 6) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 7) PART IS SYMMETRICAL ABOUT CENTERLINE

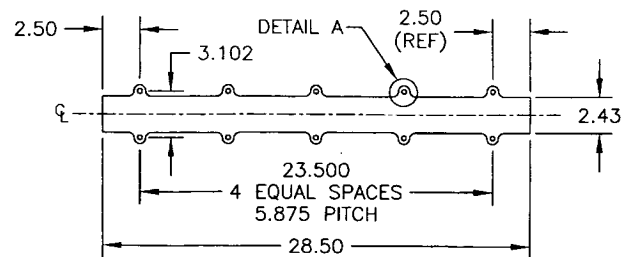
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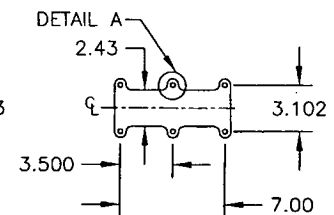
|                  |                   |  |
|------------------|-------------------|--|
| A                | 06.12.18          | NEW ISSUE  |
| DESIGN<br>PH     | DRAWN BY<br>PH    | <b>DART</b> DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA |
| CHECKED<br>PH    | APPROVED<br>PH    | DRAWING NO.<br>D3564   |
| DATE<br>06.12.18 | TITLE<br>WEARSHOE | REV. A<br>SHEET 1 OF 2<br>SCALE<br>1:8                         |



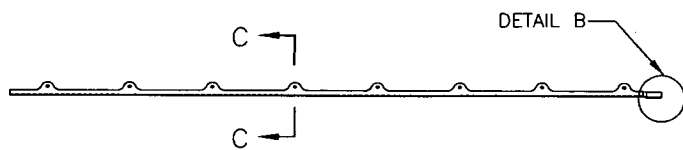
**D3564-5F FLAT PATTERN**



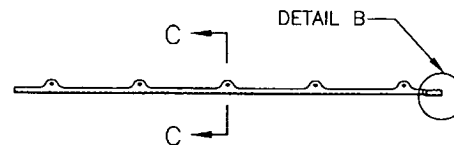
**D3564-7F FLAT PATTERN**



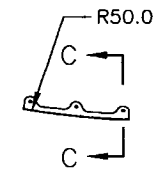
**D3564-13F FLAT PATTERN**



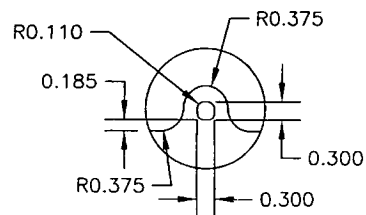
**D3564-5 BENDING DETAIL**  
(MAKE D3564-5 FROM D3564-5F)



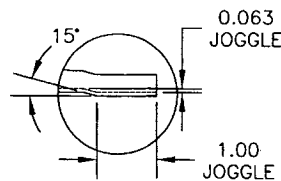
**D3564-7 BENDING DETAIL**  
(MAKE D3564-7 FROM D3564-7F)



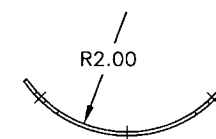
**D3564-13 BENDING DETAIL**  
(MAKE D3564-13 FROM D3564-13F)



**DETAIL A**  
SCALE 1:2



**DETAIL B**  
SCALE 1:2



**SECTION C-C**  
SCALE 1:2

RELEASED

07.02.28

31419  
RDER  
TO ATTENDY  
SURF  
UNCO, TROLLED C  
JINEERING  
TURN TO  
SHOP

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|                  |                |                      |  |
|------------------|----------------|----------------------|--|
| DESIGN<br>PH     | DRAWN BY<br>PH | <b>DART</b>          | DART AEROSPACE LTD.<br>HAWKESBURY, ONTARIO, CANADA |
| CHECKED<br>#     | APPROVED<br>#  | DRAWING NO.<br>D3564 | REV. A<br>SHEET 2 OF 2                             |
| DATE<br>06.12.18 |                | TITLE<br>WEARSHOE    | SCALE<br>1:8                                       |

|   |  |                            |
|---|--|----------------------------|
| <b>DART AEROSPACE LTD</b>                   |  | <b>Work Order:</b> 31419   |
| <b>Description:</b> Wear Pad                |  | <b>Part Number:</b> D35643 |
| <b>Inspection Dwg:</b> D35643 <b>Rev:</b> A |  | <b>Page 1 of 1</b>         |

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☒ Prototype

| Inspection Sheet<br>Drawing Dimension |               | Tolerance | Actual<br>Dimension | Accept | Reject | Method of<br>Inspection  | Comments |
|---------------------------------------|---------------|-----------|---------------------|--------|--------|--------------------------|----------|
| A                                     | 12.104        | +/- 0.010 | 12.100              | ✓      |        | M-T / cm                 |          |
| B                                     | 18.000        | +/- 0.010 | 18.000              | ✓      |        | MT                       |          |
| C                                     | 6.000         | +/- 0.010 | 6.003               | ✓      |        | Vern                     |          |
| D                                     | 6.000 (pitch) | +/- 0.010 | 5.998               | ✓      |        | Vern                     |          |
| E                                     | 3.102         | +/- 0.010 | 3.098               | ✓      |        | Vern                     |          |
| F                                     | 2.50          | +/- 0.030 | 2.51                | ✓      |        | Vern <sup>Vertical</sup> |          |
| G                                     | 2.43          | +/- 0.030 | 2.43                | ✓      |        | Vern                     |          |
| H                                     | 0.300         | +/- 0.010 | 0.302               | ✓      |        | Vern                     |          |
| I                                     | 0.300         | +/- 0.010 | 0.306               | ✓      |        | Vern                     |          |
| J                                     | 0.063         | +/- 0.010 | 0.060               | ✓      |        | Vern                     |          |
| K                                     |               |           |                     |        |        |                          |          |
| L                                     |               |           |                     |        |        |                          |          |
| M                                     |               |           |                     |        |        |                          |          |
| N                                     |               |           |                     |        |        |                          |          |
| O                                     |               |           |                     |        |        |                          |          |
| P                                     |               |           |                     |        |        |                          |          |
| Q                                     |               |           |                     |        |        |                          |          |
| R                                     |               |           |                     |        |        |                          |          |
| S                                     |               |           |                     |        |        |                          |          |
| T                                     |               |           |                     |        |        |                          |          |
| U                                     |               |           |                     |        |        |                          |          |
| V                                     |               |           |                     |        |        |                          |          |
| W                                     |               |           |                     |        |        |                          |          |
| X                                     |               |           |                     |        |        |                          |          |
| Y                                     |               |           |                     |        |        |                          |          |

|                         |                                |                            |     |
|-------------------------|--------------------------------|----------------------------|-----|
| <b>Measured by:</b> SAN | <b>Audited by:</b> [Signature] | <b>Prototype Approval:</b> | N/A |
| <b>Date:</b> 07/03/25   | <b>Date:</b> 07/03/25          | <b>Date:</b>               | N/A |

| Rev | Date | Change    | Revised by | Approved |
|-----|------|-----------|------------|----------|
|     |      | New Issue | KJ/RF      |          |

L Lacelle

From: Peter Hum [phum@dartaero.com]  
Sent: April 13, 2007 9:11 AM  
To: 'Chris Provencal'; 'Jason Murdoch'; 'Bill Beckett (Bill Beckett)'; cbell@dartaero.com; 'Dale Trepanier'; 'Dan Stow (Dan Stow)'; 'Eric Charbonneau'; 'Jean Luc Menard'; 'Kim Johnston (Kim Johnston)'; 'Leanne Elsliger'; 'Linda Lacelle (Linda Lacelle)'; 'Marc Bellavance'; 'Serge Shahbazian'; 'Susanne Sheldon (Susanne Sheldon)'  
Subject: UNDER REVIEW D3535, D3537, D3564 WEARPLATES/WEARPADS

Drawings D3535, D3537, and D3564 are UNDER REVIEW. All production of the wearplates/wearpads called up on the drawings should be STOPPED.

Engineering has discovered a problem with the tabs not being wide enough when the gasket is installed underneath.

I will be providing Eric and JLM a small set of revised wearplates to perform a fit and function before they are released.

Items in stock can be re-worked to fit in order to meet demand.

Once the revised wearplates are okay for assembly, I will release an updated drawing.

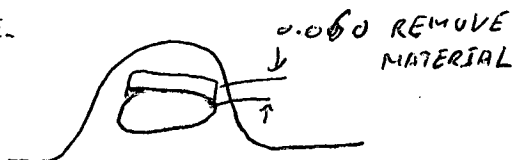
-Peter

|       | sth           | on w/c              |
|-------|---------------|---------------------|
| D3535 | <del>67</del> | <del>18-31747</del> |
| D3537 | D3537-1       | 10-31725            |
|       | -1            | 10-31417            |
|       | -3            | 10-31419            |
| D3564 | -13           |                     |
|       | -5            |                     |
|       | 12            | 31726               |
|       | D3537-3       |                     |

FOR D412-742-011-013

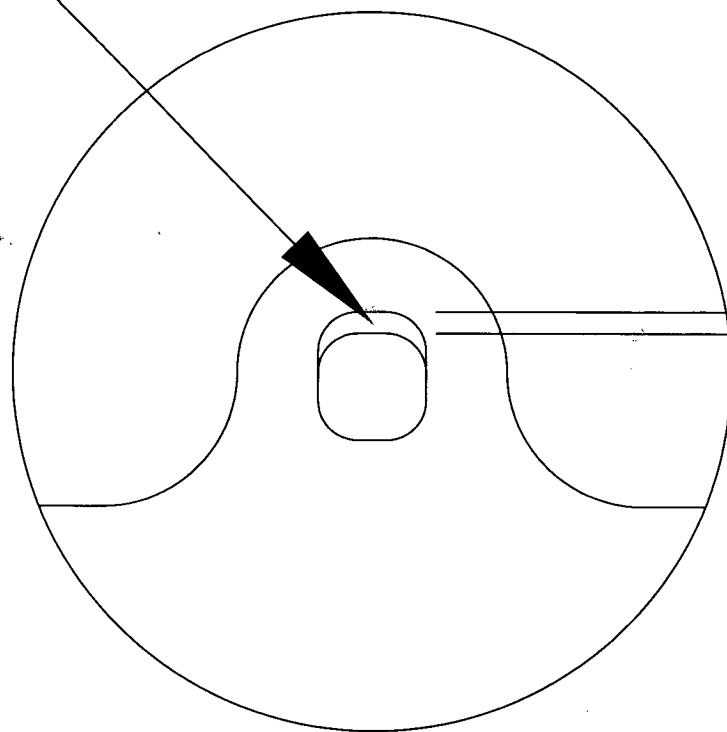
- OPEN TABS 0.060" OUTBOARD TO ALLOW INSTALLATION

S.E.





REMOVE  
MATERIAL



0.060

**Peter Hum**


---

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** April 12, 2007 4:55 PM  
**To:** 'Peter Hum'  
**Cc:** 'Chris Provencal'; 'Jason Murdoch'; 'L Lacelle'; 'S Shahbazian'; 'Bill Beckett'; 'Jean-Luc Menard'; 'Eric Charbonneau'  
**Subject:** RE: stainless steel wearplate with gasket tab widening

This is an acceptable deviation to me.

However, the parts have to be cleaned up considerably from what I saw in the pictures (deburred and paint touched up).

It is my understanding that these tubes are going to a high profile customer (Air Log).

It can't be done half-assed or look like it was made to fit, in my opinion.

I can't understand why we are just finding out now that the flat pattern is 0.100" to 0.120" too narrow the day before we want to ship the parts. It seems to me this could have been tried with one small prototype piece on a couple sets of holes before we programmed and cut multiple parts on the waterjet. When I sign the drawings, I am assuming all of this stuff has been worked out. I would guess that the programmers are making the same assumption.

We have done a lot of conversions to stainless steel wearplates on other STC's (350, 412 float, 135). Have we done fitups for all of these parts to ensure that they will fit properly with the gasket?

Thanks,  
David

---

**From:** Peter Hum [mailto:phum@dartaero.com]  
**Sent:** Thursday, April 12, 2007 2:30 PM  
**To:** 'David Shepherd'  
**Cc:** 'Chris Provencal'; 'Jason Murdoch'; 'L Lacelle'  
**Subject:** stainless steel wearplate with gasket tab widening

David,

+ 0412-742 24 02.04.17

We are trying to ship a 206L/407 float skidtube with stainless steel wearplates and the rubber gasket. Upon assembly we have found that the extra thickness the gasket gives, causes a difficult fit for the wearplate.

Jason opened the holes on the tab and the bolts not fit properly, to join the wearplates to the skidtube (see the attached pictures). We would have to open up all the wearplate tabs.

Is this an acceptable deviation for this shipment?

For future shipments the flat pattern will need to be updated.

Thanks  
Peter

17/04/2007